

Remarks

Reconsideration of this application as amended is respectfully requested.

Claims 1-5, 9 and 13-15 stand rejected under 35 U.S.C. § 102(b) as being unpatentable over U.S. Patent No. 4,455,626 of *Lutes et al.* ("*Lutes*").

Claims 1-4, 6-10 and 13-15 stand rejected under 35 U.S.C. § 102(b) as being unpatentable over U.S. Patent No. 5,748,524 of *Chen et al.* ("*Chen*").

Claims 1-9 and 13-15 stand rejected under 35 U.S.C. § 102(e) as being unpatentable over U.S. Patent No. 5,956,267 of *Hurst et al.* ("*Hurst*").

Claims 1-12 and 13-15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Hurst* in view of *Chen*.

Claims 1-15 have been canceled. New claims 23-33 have been added.

The Examiner has rejected claims 1-5, 9 and 13-15 under 35 U.S.C. § 102(b) as being anticipated by *Lutes*. Applicants respectfully submit, however, that new claim 23 is not anticipated by *Lutes*. New claim 23 is a magnetic memory that includes the limitations

array of magnetic memory cells each having a sense layer for storing a magnetization state;
structure that runs continuously along a subset of the magnetic memory cells in a line of the array, the structure having a U-shape and a proximity to the sense layers in the line which provides a flux closure path that directs demagnetization fields away from a pair of edge regions of each sense layer in the line, the structure having an easy axis that is substantially perpendicular to an easy axis of each sense layer in the line.

(New claim 23, emphasis added).

Lutes does not disclose a magnetic memory with a structure having a U-shape that provides a flux closure path which directs demagnetization fields away from sense layers as claimed in new claim 23. Instead, *Lutes* discloses a pair of flat shaped flux concentrators 12, 13

that close flux from a memory film 11 through an MR sensor 14 located in a gap between the flux concentrators 12, 13. (*Lutes*, col. 2, lines 61-64).

Moreover, *Lutes* does not disclose a magnetic memory with a structure which runs along a line of magnetic memory cells as claimed in new claim 23. Instead, *Lutes* discloses flux concentrators 12, 13 which are isolated to individual storage cells. (See Fig. 5 of *Lutes* showing a top view of the element 12 which does not run continuously to other storage cells as claimed in new claim 23).

Furthermore, the flux closed by the flux concentrators 12, 13 is flux from the memory film 11, i.e. a sense layer, (*Lutes*, col. 2, lines 61-64) rather than a demagnetization flux which is directed away from a sense layer as claimed in new claim 23.

The Examiner has stated that in the absence of evidence to the contrary the structure 12, 13 of *Lutes* inherently prevents disruptions to ends of a sense layer. (Page 2, Office Action, 9-12-2001). *Lutes* does not teach that the structure 12, 13 has the inherent function of preventing disruptions to ends of the memory film 11. It is submitted that *Lutes* implies otherwise by teaching that disruptions to the memory film 11 are instead prevented by positioning of the MR sensor 14 away from the memory film 11. (*Lutes*, col. 3, lines 20-25).

It is therefore submitted that the U-shape structure of new claim 23 that directs demagnetization fields away from sense layers and that runs along a line of magnetic memory cells is not anticipated by the flux concentrators of *Lutes* which close flux from a memory film through an MR sensor.

Given that new claims 24-33 depend from new claim 23, it is submitted that new claims 24-33 are not anticipated by *Lutes*.

The Examiner has rejected claims 1-4, 6-10 and 13-15 under 35 U.S.C. § 102(b) as being anticipated by *Chen*. Applicants respectfully submit that new claim 23 is not anticipated by *Chen*. The magnetic memory of new claim 23 includes a structure having a U-shape that provides a flux closure path which directs demagnetization fields away from sense layers. In contrast, *Chen* discloses a memory cell 20 having a pinning material 30 disposed on each edge of the memory cell 20 (see Figs 5 and 6 of *Chen*). It is submitted that the pinning material 30 does not provide a flux closure path as does the U-shape structure of new claim 23.

Given that new claims 24-33 depend from new claim 23, it is submitted that new claims 24-33 are not anticipated by *Chen*.

The Examiner has rejected claims 1-9 and 13-15 under 35 U.S.C. § 102(e) as being anticipated by *Hurst*. Applicants respectfully submit that new claim 23 is not anticipated by *Hurst*. New claim 23 is a magnetic memory that includes the limitations

array of magnetic memory cells each having a sense layer for storing a magnetization state;

structure that runs continuously along a subset of the magnetic memory cells in a line of the array, the structure having a U-shape and a proximity to the sense layers in the line which provides a flux closure path that directs demagnetization fields away from a pair of edge regions of each sense layer in the line, the structure having an easy axis that is substantially perpendicular to an easy axis of each sense layer in the line.

(New claim 23, emphasis added).

Hurst discloses a keeper structure 30 that is isolated from a bit region 70 by a dielectric layer 60. (See Figs 7-8 of *Hurst*) rather than a structure with a proximity to sense layers that directs demagnetization fields away from the sense layers as claimed in new claim 23. Moreover, *Hurst* teaches the advantages of enhanced write field as a result of a keeper layer (see Figs 16-17

and col. 7, lines 5-24 of *Hurst*) rather than magnetic stability as claimed in new claim 23.

Given that new claims 24-33 depend from new claim 23, it is submitted that new claims 24-33 are not anticipated by *Hurst*.

The Examiner has rejected claims 1-12 and 13-15 under 35 U.S.C. § 103(a) as being obvious in view of *Hurst* and *Chen*. The Examiner has stated that it would have been obvious in view of *Chen* to stabilize the end regions of a sense layer using a ferromagnetic material. (Page 2, Office Action, 9-12-2001). As shown above, *Chen* discloses a pinning material 30 composed for two separate structures (see Figs 5 and 6 of *Chen*) rather than a U-shape structure as claimed in new claim 23.

It is respectfully submitted that any combination of *Hurst* and *Chen* would still lack the limitation of a structure with a proximity to a sense layer that directs demagnetization fields away from a sense layer as claimed in new claim 23. For example, *Hurst* teaches a keeper structure 30 that is isolated from a bit region 70 by a dielectric layer (See Figs 7-8 of *Hurst*) rather than a structure having a proximity to a sense layer that directs demagnetization fields away from the sense layer as claimed in new claim 23.

Given that new claims 24-33 depend from new claim 23, it is submitted that new claims 24-33 are not obvious in view of *Hurst* and *Chen*.

It is respectfully submitted that in view of the amendments and arguments set forth above, the applicable objections and rejections have been overcome.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 08-2025 for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

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